

Appl. No.: 09/700,926  
Docket No.: 1807-0151P  
Reply to Office Action of November 19, 2003

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A device for determining ~~the~~ a position of a vehicle on a roadway by using radio waves which are emitted from the device and reflected by the vehicle and received by at least two array antennas ~~(1, 2)~~ arranged across the roadway, ~~characterized in that~~ comprising:

each of the array antennas ~~(1, 2)~~ comprise including a number of antenna elements ~~(5-14)~~, one of the antenna elements in the respective array antenna constituting ~~the~~ a phase center ~~(5, 10)~~ of the array antennas, and

wherein the antenna elements ~~(5-14)~~ of the array antennas are connected to one another such that ~~the~~ a distance ~~(d)~~ between the phase centers ~~(5, 10)~~ of the array antennas ~~(1, 2)~~ included is smaller than half the width of an individual array antenna ~~(1, 2)~~.

2. (currently amended) A The device according to claim 1, ~~characterized in that~~ wherein the connection comprises interweaving the array antennas ~~(1, 2)~~ with each other in that the phase center ~~(5, 10)~~ of one array antenna is arranged among the antenna elements ~~(11-14, 6-9)~~ of another array antenna ~~(1, 2)~~.

3. (currently amended) A The device according to claim 2, ~~characterized in that~~ wherein the phase centers ~~(5, 10)~~ of the respective array antennas ~~(1, 2)~~ are placed close to each other.

4. (currently amended) A The device according to claim 2, ~~characterized in that~~ wherein some of the antenna elements ~~(24-38)~~ are at the same time connected to more than one array antenna ~~(21, 22, 23)~~.

5. (currently amended) A The device according to claim 4, ~~characterized in that~~ wherein signals obtained from antenna elements ~~(24-38)~~ which are utilized by more than one array antenna ~~(21, 22, 23)~~ undergo a power amplification, followed by a power division of the amplified signal on the respective array antenna ~~(21, 22, 23)~~.

6. (currently amended) A The device according to any of the preceding claims, ~~characterized in that~~ wherein an azimuth angle  $\theta$  to the vehicle ~~(3)~~ is determined from an antenna position where at least one pair of substantially horizontally arranged array antennas ~~(1, 2)~~ is arranged.

7. (currently amended) A The device according to claim 6, ~~characterized in that~~ wherein an angle of elevation to the vehicle ~~(3)~~ is determined from an the antenna position where at least one pair of substantially vertically arranged array antennas is arranged.

8. (currently amended) A The device according to claim 7, ~~characterized in that~~ wherein the position of the vehicle in

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relation to the antennas is determined by means of knowledge of the azimuth angle  $\theta$  and the angle of elevation.